AMENDMENTS TO THE CLAIMS

Please find below a listing of claims that will replace all prior versions, and listings, of claims in the application:

1. (*currently amended*) A multi-wavelength laser source comprising:
   a) an input for receiving an energy signal;
   b) a gain section in communication with said input, said gain section including a homogeneously broadened gain medium having a superstructure grating forming a distributed Fabry-Perot-like structure, in use the gain section ~~generates~~ generating a multi-wavelength laser signal when the energy signal is applied to the gain section;
   c) an output for emitting the multi-wavelength laser signal.

2. (*original*) A multi-wavelength laser source as defined in claim 1, wherein the energy signal is generated by either one of a pump laser diode, a fiber laser pump, a solid state laser pump and a raman laser pumps.

3. (*original*) A multi-wavelength laser source as defined in claim 1, wherein the gain section further comprises an amplifying section.

4. (*withdrawn*) A multi-wavelength laser source as defined in claim 1, wherein the superstructure grating is a continuous grating such as to provide a multi-wavelength laser having substantially equally spaced frequencies.

5. (*withdrawn*) A multi-wavelength laser source as defined in claim 1, wherein the superstructure grating is a discontinuous grating.

6. (*original*) A multi-wavelength laser source as defined in claim 1, wherein the superstructure grating comprises:
   a) a first grating segment;
   b) a second grating segment superposed at least in part on said first grating segment.

7. (*original*) A multi-wavelength laser source as defined in claim 6, wherein the first grating segment is a chirped Bragg grating.

8. (*original*) A multi-wavelength laser source as defined in claim 7, wherein the second grating segment is a chirped Bragg grating.

9. (*original*) A multi-wavelength laser source as defined in claim 6, wherein the first grating segment and the second grating segment are substantially similar to one another.

10. (*withdrawn*) A multi-wavelength laser source as defined in claim 1, wherein the superstructure grating comprises a plurality of grating segments, each grating segment in said plurality of grating segments overlapping at least in part at least another grating segment in said plurality of grating segments.

11. (*withdrawn*) A multi-wavelength laser source as defined in claim 1, wherein the superstructure grating comprises a plurality of sequential grating segments, each grating segment being associated to a respective period and phase.

12. (*withdrawn*) A multi-wavelength laser source as defined in claim 1, wherein the superstructure grating includes an index grating structure.

13. (*withdrawn*) A multi-wavelength laser source as defined in claim 1, wherein the superstructure grating has a complex apodization shape in amplitude.

14. (*withdrawn*) A multi-wavelength laser source as defined in claim 13, wherein the superstructure grating has a complex apodization shape in phase.

15. (*original*) A multi-wavelength laser source as defined in claim 1, wherein the gain medium is selected from the set consisting of erbium-doped glass, rare earth doped glasses, crystals, semiconductor materials and doped polymer materials.

16. (*cancelled*)

17. (*currently amended*) A multi-wavelength laser source as defined in claim ~~16~~ 1, wherein said gain section includes an optical waveguide.

18. (*original*) A multi-wavelength laser source as defined in claim 17, wherein the optical waveguide includes either one of an optical fiber, a channel waveguide, a planar optical waveguide, a photonic bandgap waveguide and a hollow waveguide.

19. (*original*) A multi-wavelength laser source as defined in claim 17, wherein said optical waveguide includes a waveguide core and a waveguide cladding.

20. (*original*) A multi-wavelength laser source as defined in claim 19, wherein the superstructure grating is located in the waveguide core.

21. (*original*) A multi-wavelength laser source as defined in claim 19, wherein the superstructure grating is located in the waveguide cladding.

22. (*currently amended*) A method suitable for generating a multi-wavelength laser signal, said method comprising:

a) receiving an energy signal;

b) providing a gain section including a homogeneously broadened gain medium having an superstructure grating forming a distributed Fabry-Perot-like structure;

c) providing the energy signal to said gain section to generate a multi-wavelength laser signal.

23. (*withdrawn*) A method for manufacturing a multi-wavelength laser source, said method comprising:

a) providing a gain section;

b) applying a superstructure grating to at least a portion of said gain section, the superstructure grating forming a distributed Fabry-Perot-like structure;

c) positioning said gain section in communication with a pump laser unit, the pump laser unit being adapted for generating an energy signal adapted for causing said gain section to generate a multi-wavelength laser signal.

24. (*withdrawn*) A method as defined in claim 23, wherein applying a superstructure grating to at least a portion of said gain section comprises exposing at least a portion of said gain section to UV radiation in order to induce the superstructure grating.

25. (*withdrawn*) A method as defined in claim 23, wherein applying a grating to at least a portion of said gain section comprises using lithographic techniques to induce the superstructure grating.

26. (*withdrawn*) A method as defined in claim 23, wherein applying a superstructure grating to at least a portion of said gain section comprises:
    a) applying a first grating to a first segment of said gain section;
    b) applying a second grating to a second segment of said gain section, said first segment and said second segment overlapping at least in part with one another.

27. (*withdrawn*) A method as defined in claim 26, wherein the first grating and the second grating are substantially similar to one another.

28. (*original*) An optical transmitter apparatus comprising the multi-wavelength laser source described in claim 1.

29. (*original*) A device suitable for providing optical components characterization comprising the multi-wavelength laser source described in claim 1.

30. (*original*) A device suitable for providing temporal spectroscopy functionality comprising the multi-wavelength laser source described in claim 1.

31. (*original*) A device suitable for providing material characterization for non-linear effects comprising the multi-wavelength laser source described in claim 1.

32. (*currently amended*) A multi-wavelength laser source comprising:
    a) a pump laser unit adapted for generating an energy signal;
    b) a gain section including a homogeneously broadened gain medium having an superstructure grating forming a distributed Fabry-Perot-like structure, the pump laser unit being adapted for applying the energy signal to said gain section such as to cause a multi-wavelength laser signal to be generated;
    c) an output for emitting the multi-wavelength laser signal.

33. (*original*) A multi-wavelength laser source as defined in claim 32, wherein the pump laser unit is positioned such as to generate the energy signal in a co-propagation relationship with the output.

34. (*original*) A multi-wavelength laser source as defined in claim 32, wherein the pump laser unit is positioned such as to generate the energy signal in a counter-propagation relationship with the output.

35. (*withdrawn*) A multi-wavelength laser source as defined in claim 32, comprising a set of pump laser units in communication with the laser cavity.

36. (*withdrawn*) A multi-wavelength laser source as defined in claim 35, wherein each pump in the set of pumps is associated to a respective wavelength.

37. (*original*) A multi-wavelength laser source as defined in claim 32, wherein said gain section comprises an amplification section.